Management of AI Projects

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Overview

• AI Project Management Methodology
• AI Project Life Cycle Phases
• AI Project Management Challenges
AI Project Management Methodology

• Use a formal methodology for managing AI projects
  – Formal project team
    – Reflects needed skills
    – Led by designated project manager
    – Authorized by project charter
  – Appropriate project life cycle
    – Includes phases, milestones, decision-points
    – Monitor and control project progression
AI Project Team

- AI Project team members
  - Project manager
  - Data scientists
  - Data engineers
  - Software developers
  - Domain experts
  - Others as required
AI Project Life Cycle

- AI Project Life Cycle Phases
  - Project Planning
  - Data Management
  - Model Development
  - Model Deployment
  - Project Review
AI Project Life Cycle Phases

- **Project Planning**
  - Understand business requirements
  - Determine analytics approach
- **Data Management**
  - Determine data requirements
  - Collect data
  - Conduct exploratory data analysis
  - Prepare data
AI Project Life Cycle Phases

- Model Development
  - Select model
  - Evaluate model
- Model Deployment
  - Deploy model
  - Tune model
- Project Review
  - Conduct after-action review
  - Determine lessons learned and best practices
AI Project Life Cycle

Source: https://www.trustinsights.ai/resources/thought-leadership/instant-insights/instant-insights-the-ai-machine-learning-lifecycle
Christopher Penn, (2019)
AI Project Management Challenges

- Over-estimating the potential of AI solutions.
- Over-estimating team’s potential to implement AI solutions.
- Underestimating the time required for data preparation.
- Difficulty in defining and measuring project success.
- Heavy dependence on the availability and quality of data.
- Behavior of the model increases uncertainty of outcomes.
- Need for post-deployment planning for model maintenance

Source: PMI Playbook for Project Management in Data Science and Artificial Intelligence Projects
Summary

• AI Project Management Methodology
• AI Project Life Cycle Phases
• AI Project Management Challenges


Back-Up Slides
Generic Project Life Cycle for Defense Acquisition (Rendon & Snider, 2019)

Traditional Software Acquisition Project Life Cycle
AI Project Management Methodology

Source: https://appinventiv.com/blog/machine-learning-app-project-estimate/  
Sudeep Srivastava (2019)
AI Project Management Best Practices

- Use non-uniform iteration cycles with appropriate time box/scope box requirements.
- Use of Checklists and SOPs.
- Training on AI project workflow and AI potential and limitations.
- Use efficiency, effectiveness, and experience success metrics.
- Collaboration for data collection required among all stakeholders to breakdown data silos.

Source: PMI Playbook for Project Management in Data Science and Artificial Intelligence Projects
AI Project Management Best Practices

- Consider adopting tools that automate data collection and preparation.
- Adopt a method for developing multiple models using “Champion-Challenger”.
- Involve the IT team consistently throughout the project, starting at the planning phase.
- Adopt MLOps to increase the likelihood of operationalizing the model sooner.
- Use surveys to solicit feedback from all stakeholders.

Source: PMI Playbook for Project Management in Data Science and Artificial Intelligence Projects